20021021.ba v03_n405.bam.20021021

>From ???@??? Mon Oct 21 13:35:58 2002 -0600
Message-Id: <200210211835.g9LIZl2a005286@sco.theporch.com>
Date: Mon, 21 Oct 2002 13:35:30 CDT
From: Old Tube Radios <boatanchors@theporch.com>
To: Old Tube Radios <boatanchors@theporch.com>
Subject: BOATANCHORS digest 3405

BOATANCHORS Digest 3405

Topics covered in this issue include:

1) Re: Cap value
   by Arden Allen <gumbear@pacbell.net>
2) Re: Cap value
   by Avery Comarow <acomarow@usnews.com>
3) Capacitor value... Grist for the BA mill
   by "Herbert M. Rosenthal" <herbrose@lobo.net>
4) Re: RCA AR88 family of receivers.
   by Al Klase <skywaves@bw.webex.net>
5) Re: RCA AR88 family of receivers.
   by "Robert Nickels" <w9ran@ONERADIO.NET>
6) Re: RCA AR88 family of receivers.
   by "Brian Goldsmith" <brian.goldsmith@echo1.com.au>
7) Re: Capacitor value... Grist for the BA mill
   by Arden Allen <gumbear@pacbell.net>
8) Re: Cap value
   by John Kolb <jlkolb@cts.com>
9) Lightning question?
   by "Arthur I. Larky" <ail0@lehigh.edu>
10) RE: Lightning question?
   by Morris Odell <MorrisO@vifp.monash.edu.au>
11) Re: Cap value
   by Arden Allen <gumbear@pacbell.net>
12) Re: Lightning question?
   by Arden Allen <gumbear@pacbell.net>
13) Cap value
   by "Brian Goldsmith" <brian.goldsmith@echo1.com.au>
14) Mosley CM-1 speaker swap
   by "James C. Garland" <4cx250b@muohio.edu>
15) Re: Mosley CM-1 speaker swap
   by Bob Duckworth <wb4mnf@atl.org>
16) WTB: HV transformer for Collins KWS-1
   by "Eugene Rippen" <soundval@foothill.net>
17) Re: Cap value
   by "Sandy, W5TVW" <ebjr@i-55.com>

Date: Sun, 20 Oct 2002 09:12:07 -0700
From: Arden Allen <gumbear@pacbell.net>
Subject: Re: Cap value
To: Old Tube Radios <boatanchors@theporch.com>
Message-id: <001a01c27853$73f0e120$efe57443@KB6NAX>
MIME-version: 1.0
Content-type: text/plain; charset=iso-8859-1
Content-transfer-encoding: 7bit

Hi Avery;

> The consensus answer was 1000pf (.001mf). Z5F, several of you said, indicates the temperature compensation, which for a cap of this value can safely be ignored outside an RF circuit. The voltage rating remains a mystery. I'd love to think that MDC means 1000 volts DC, but I seriously doubt it. The caps are very small.

Just some additional information: The "K" stands for 10% tolerance. "Z5F" refers to the dielectric characteristic which is more complicated than just temperature coefficient of capacitance. Barry Ornitz can give us more information about the chemistry and physics of capacitor dielectrics and probably will when he catches up with us.

A 1000 volt rating for this capcitor value with respect to its physical size is not unusual. Because the Z5F formulation, along with several similar types, is a so-called "hi-K" type, it is volumetrically very efficient, i.e., a large amount of capitance for its size. Hence the small size. The tradeoff is the capacitance value is very sensitive to both temperature and voltage applied. The value can change as much as 100% for some types of hi-K caps. I'm not sufficiently familiar with the various specs to know about Z5F caps. A visit to a capacitor manufacturer's website my yield the information if you're curious.

> Would you go ahead and use them around boatanchor B+ voltages, like up to 500 or so, and see if they pop? Should I put a few of them across a variable DC supply and crank it up slowly and see what happens?

Looks can be deceiving. I don't know what the voltage rating of your caps is but my guess is it's 500 or 1000 volts because there is no explicit voltage marking. Yes, a test of breakdown voltage is a good idea. Just remember, when doing things like this wear eye protection to prevent injury if the cap should suddenly explode. Put a limiting resistance in series with the cap to prevent damage to the power supply as well as limiting the fury when the cap shorts. Have fun safely.

Arden Allen
KB6NAX

gumbear@pacbell.net

Message-Id: <3.0.6.32.20021020155611.007e5be0@ntpop.usnews.com>
Date: Sun, 20 Oct 2002 15:56:11 -0400
To: Old Tube Radios <boatanchors@theporch.com>
From: Avery Comarow <acomarow@usnews.com>
Subject: Re: Cap value
Mime-Version: 1.0
Content-Type: text/plain; charset="us-ascii"

Arden, Joe, Russ, Sandy, other gurus who weighed in on the disk ceramics--

Thanks for your collective advice and wisdom. Arden's added info pretty much closes the circle, although I do mean to dig out my variable DC power supply, don protective goggles, and see if the caps can withstand a few hundred volts. If and when I do that, I'll post the results to the group.

73, Avery W3AVE

At 09:12 AM 10/20/02 -0700, you wrote:
>Hi Avery;
>
>> The consensus answer was 1000pf (.001mf). Z5F, several of you said,
>> indicates the temperature compensation, which for a cap of this value can
>> safely be ignored outside an RF circuit. The voltage rating remains a
>> mystery. I'd love to think that MDC means 1000 volts DC, but I seriously
>> doubt it. The caps are very small.
>
>Just some additional information: The "K" stands for 10% tolerance. "Z5F"
>refers to the dielectric characteristic which is more complicated than just
>temperature coefficient of capacitance. Barry Ornitz can give us more
>information about the chemistry and physics of capacitor dielectrics and
>probably will when he catches up with us.
>
>A 1000 volt rating for this capcitor value with respect to its physical size
>is not unusual. Because the Z5F formulation, along with several similar
>types, is a so-called "hi-K" type, it is volumetrically very efficient,
>i.e., a large amount of capitance for its size. Hence the small size. The
>tradeoff is the capacitance value is very sensitive to both temperature and
>voltage applied. The value can change as much as 100% for some types of
>hi-K caps. I'm not sufficiently familiar with the various specs to know
>about Z5F caps. A visit to a capacitor manufacturer's website my yield the
>information if you're curious.
>
>> Would you go ahead and use them around boatanchor B+ voltages, like up to
>> 500 or so, and see if they pop? Should I put a few of them across a

>> variable DC supply and crank it up slowly and see what happens?
>
>Looks can be deceiving. I don't know what the voltage rating of your caps
>is but my guess is it's 500 or 1000 volts because there is no explicit
>voltage marking. Yes, a test of breakdown voltage is a good idea. Just
>remember, when doing things like this wear eye protection to prevent injury
>if the cap should suddenly explode. Put a limiting resistance in series
>with the cap to prevent damage to the power supply as well as limiting the
>fury when the cap shorts. Have fun safely.
>
>Arden Allen
>KB6NAX
>gumbear@pacbell.net
>
>
>

Message-ID: <3DB31C25.3CEF6899@lobo.net>
Date: Sun, 20 Oct 2002 15:12:16 -0600
From: "Herbert M. Rosenthal" <herbrose@lobo.net>
MIME-Version: 1.0
To: Old Tube Radios <boatanchors@theporch.com>
Subject: Capacitor value... Grist for the BA mill
Content-Type: text/plain; charset=us-ascii
Content-Transfer-Encoding: 7bit

Grist for the BA mill:

So now you have a capacitor test setup with a variable dc hv supply, clip leads,
a limiting resistor, goggles, and perhaps a meter in series, all strung out to
see when leakage begins; you then reduce the voltage, remove the meter and
increase the voltage and
go for destruct... or hold at a desired operating voltage for an hour or more.

Question: How do you measure the true capacity at, say 600 volts? Or 1000?

I know that some older capacitor meters (I have one made in Puerto Rico a long
time ago-magic eye and all) that lets you measure capacity with various applied
voltages
(primarily for testing electrolytics).... better use the discharge button before
removing the cap and touching the leads (been there, done that-ouch)!!!

Perhaps you could rig a resonant circuit and use a GDO and calculate the C with
a known L... if the capacity was reasonably low.

And I also have a modern digital LCR meter that operates from a 9 volt battery,
and certainly won't accept 600v across its input terminals. Probably useless for

this application.

So how do you do it without a dedicated hv cap meter??

Herb Rosenthal W5AN

Message-ID: <3DB32BF2.DF85E69D@bw.webex.net>
Date: Sun, 20 Oct 2002 18:19:30 -0400
From: Al Klase <skywaves@bw.webex.net>
MIME-Version: 1.0
To: Old Tube Radios <boatanchors@theporch.com>
CC: Old Tube Radios <boatanchors@theporch.com>
Subject: Re: RCA AR88 family of receivers.
Content-Type: text/plain; charset=us-ascii
Content-Transfer-Encoding: 7bit

Brian and the Group,

I'll add my two sents to the AR-88 discussion as it's one of my very favotite radios. The following is quoted from an RCA douument titled "Radio Corporation of America, A Synopsis of It's Products both Present and Planned and It's Services." This was a sales pitch to the Soviet "Peoples Commissariat of Electrical Industry" and is beleived to have been written in late 1944 or early 1945.

>From Section 10 - Communication receivers:

AR88 - 2-1/2 watt audio output 550 kc to 30,000 kc
ER88 - 550 kc to 30,000 kc but with 10 watts audio output (I want one of these! - N3FRQ)
CR91 - 2-1/2 watt audio 75 - 550 kc 1500 - 30,000 kc
DR89 - 550 - 30,000 kc diversity receiver including 3 AR88

Regards,
Al

--
Al Klase - N3FRQ
skywaves@bw.webex.net
Flemington, NJ 08822
Web Page: http://www.webex.net/~skywaves/home.htm

Message-ID: <003601c2789b$939ae0a0$fb396f0a@pavillion>
From: "Robert Nickels" <w9ran@ONERADIO.NET>
To: Old Tube Radios <boatanchors@theporch.com>
Subject: Re: RCA AR88 family of receivers.
Date: Sun, 20 Oct 2002 19:48:27 -0500
MIME-Version: 1.0
Content-Type: text/plain;
charset="iso-8859-1"
Content-Transfer-Encoding: 7bit

> ER88 - 550 kc to 30,000 kc but with 10 watts audio output (I
> want one of these! - N3FRQ)

Make that two of us, Al!

I also love the AR-88, for audio quality as much as the wonderful flywheel tuning. I think it's a combination of the bandwidth, noise level, and a good basic audio design but I'd rather listen to it than most any other BA receiver. And I've never touched a tube or cap in it! I've wondered what one would sound like with a P-P output stage, but this is the first I've heard that such a thing was actually made.

73, Bob W9RAN

Message-ID: <003301c278a0$1d101950$890f8490@server>
From: "Brian Goldsmith" <brian.goldsmith@echo1.com.au>
To: Old Tube Radios <boatanchors@theporch.com>
Subject: Re: RCA AR88 family of receivers.
Date: Mon, 21 Oct 2002 11:20:57 +1000
MIME-Version: 1.0
Content-Type: text/plain;
charset="iso-8859-1"
Content-Transfer-Encoding: 7bit

----- Original Message -----
From: "Robert Nickels"

> ER88 - 550 kc to 30,000 kc but with 10 watts audio output (I
> want one of these! - N3FRQ)

Make that two of us, Al!

I also love the AR-88, for audio quality as much as the wonderful flywheel tuning.

I've wondered what one would sound like with a P-P output stage, but this is the first I've heard that such a thing was actually made.

*****Bob and the list.The CR88B that was built for the RCA Radiomarine Corp (.535 to 32 MHz) is shown as having P-P 6K6s and as a result of the increased B plus current draw,the rectifier is upgraded to a 5U4.A crystal calibrator is also included.   Drool!!!!!!!!!

Brian Goldsmith.

Date: Sun, 20 Oct 2002 19:29:06 -0700
From: Arden Allen <gumbear@pacbell.net>
Subject: Re: Capacitor value... Grist for the BA mill
To: Old Tube Radios <boatanchors@theporch.com>
Message-id: <003901c278a9$a3b7c0d0$0ee47443@KB6NAX>
MIME-version: 1.0
Content-type: text/plain; charset=iso-8859-1
Content-transfer-encoding: 7bit

Hi Herb;

Connect a 1uF capacitor in series with the cap under test calculate the value of the unknown from the result. Charge the unknown to your test voltage through a high value resistor (10 meg). Measure again. Calucate the voltage coefficient from the two different results. Don't get zapped and don't zap your RCL meter.

Arden Allen
KB6NAX
gumbear@pacbell.net

Date: Sun, 20 Oct 2002 20:19:19 -0700 (PDT)
From: John Kolb <jlkolb@cts.com>
To: Old Tube Radios <boatanchors@theporch.com>
cc: Old Tube Radios <boatanchors@theporch.com>
Subject: Re: Cap value
Message-ID: <Pine.BSF.4.44.0210202009040.62085-100000@king.cts.com>
MIME-Version: 1.0
Content-Type: TEXT/PLAIN; charset=US-ASCII

On Sun, 20 Oct 2002, Avery Comarow wrote:

> Arden, Joe, Russ, Sandy, other gurus who weighed in on the disk ceramics--
>
> Thanks for your collective advice and wisdom. Arden's added info pretty

> much closes the circle, although I do mean to dig out my variable DC power
> supply, don protective goggles, and see if the caps can withstand a few
> hundred volts. If and when I do that, I'll post the results to the group.
>
> 73, Avery W3AVE

I'd like to cast a disenting vote.
I've never heard of Z5F ceramic, but Z5U is commonly used for values around -.1-1.0 uF ceramic caps. Typically X7r is used for around 0.01-0.1. Looking at the CDE website http://www.cornell-dublier.com at the general purpose ceramic cap section, SL is used from 1-68 pf, 91 pf-0.022 uF is Y5P or Y5U, and X7R is used for 0.1. The X7 ceramics vary moderately with temp, and the Z5 ceramics vary wildly - heat a 0.1 uF Z5U and you can see it drop to 0.01 uF. 0.001 uF caps can be made from very temperature stable ceramics, so I can't see any good reason to make one from a Z5 material.

If you'd like to mail me a sample cap, I can measure it with a C meter - can't tell the voltage rating however.

John KK6IL

> At 09:12 AM 10/20/02 -0700, you wrote:
> >Hi Avery;
> >
> >> The consensus answer was 1000pf (.001mf). Z5F, several of you said,
> >> indicates the temperature compensation, which for a cap of this value can
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> >hi-K caps. I'm not sufficiently familiar with the various specs to know
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> >information if you're curious.

> >
> >> Would you go ahead and use them around boatanchor B+ voltages, like up to
> >> 500 or so, and see if they pop? Should I put a few of them across a
> >> variable DC supply and crank it up slowly and see what happens?
> >
> >Looks can be deceiving. I don't know what the voltage rating of your caps
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> >voltage marking. Yes, a test of breakdown voltage is a good idea. Just
> >remember, when doing things like this wear eye protection to prevent injury
> >if the cap should suddenly explode. Put a limiting resistance in series
> >with the cap to prevent damage to the power supply as well as limiting the
> >fury when the cap shorts. Have fun safely.
> >
> >Arden Allen
> >KB6NAX
> >gumbear@pacbell.net
> >
> >
> >
>
>

Message-ID: <3DB373F2.22740FCC@lehigh.edu>
Date: Sun, 20 Oct 2002 23:26:43 -0400
From: "Arthur I. Larky" <ail0@lehigh.edu>
MIME-Version: 1.0
To: Old Tube Radios <boatanchors@theporch.com>
Subject: Lightning question?
Content-Type: text/plain; charset=us-ascii
Content-Transfer-Encoding: 7bit

I need some collective wisdom - my problem is that we are renovating our new home on Atlantic City Island and I need help in dealing with a potential electrocution problem.

We are remodeling our basement into an office and a BA area (see - there is BA content here); as part of which we had to waterproof the basement. Atlantic City Island is a barrier island and our basement is just about at sea level. It used to get lots of water when it rained so we contracted to have it dried out. They dug trenches all along the inside perimeter of the house; filled them with gravel; installed drain pipes; drain holes in the cinder block; plastic to direct wall seepage water into the trenches and topped the trenches with concrete. The end result was four battery backed-up sump pumps. This was in June and everything was fine until last Wednesday when my wife found a puddle! She called the installers and they came right out and said "this has never happened before; when we dry a basement it always stays dry" and "we will take care of it".

Because part of the trench runs directly in front of the door from the basement to the outside, we put a metal plate at the inside of the door over the trench so that bringing heavy BA's in via a hand truck (or a strong neighbor) would not over-stress the cement over the trench.
The head honcho looked at that and said "you risk getting electrocuted if you are standing on the plate and touching the door when lightning strikes". (Did I tell you that the door is metal?)

I thought: 'you know, he may be right'!

The metal plate and the metal door will act as plates of a capacitor which, while not a large capacitance, will charge up a lot when a large bolt of lightning hits nearby. In addition, there will be water flowing in the trench to add to the chargable capacitance. (Yes, it should be in series and reduce the capacitance, but I'd rather not argue such niceties with a lightning bolt.) So we removed the metal plate.

Here are my questions:

(1) Should I bond the metal plate to the door with metal braid (what kind of metal), but will that help?

(2) Should I ground the door & plate combo to the water pipe? It's going to need several feet of wire to reach the water pipe.

(3) What should I do about the underlying stream of water in the trench? Is that an additional danger?

(4) Replacing the door with a wooden door is not an option unless I also replace my wife - which definately is not an option - she's my General Contractor on the job; besides she was too hard to find in the first place.

(5) Should I just take away the metal plate and take my chances that no one will clump down on the top of the trench and crack the concrete?

(6) Should I hide in an upper floor during thunder storms and hope that some poor person doesn't decide to knock on my metal basement door at the wrong time? He/she won't be standing on the metal plate, but he/she will be standing on thewet metal grating just outside the door; the one that catches the water from the steps and pipes it under the door and into the trench.

This is a serious question and I would appreciate some serious advice.

Thanks,
Art K3HBA

Message-ID:
<07A064EA6042D4118A62009027F70E77182292@nt_exchange.vifp.monash.edu.au>
From: Morris Odell <MorrisO@vifp.monash.edu.au>
To: Old Tube Radios <boatanchors@theporch.com>
Subject: RE: Lightning question?
Date: Mon, 21 Oct 2002 15:27:09 +1000
MIME-Version: 1.0
Content-Type: text/plain;
charset="iso-8859-1"

Art wrote:

> I need help in dealing with a
> potential electrocution problem.

<snip>

I think the wet concrete (plus or minus grating) will be just as good a gounded capacitor plate as any metal plate sitting on top of it. The problem is not the plate on the ground, but the door, which is presumably isolated (actually, there will some leakage conduction through wet brickwork etc. It would be interesting to measure the resistance to ground on a wet non-stormy day with a megger, but I digress). Your visitor will not be able to avoid standing on the wet ground but may experience a shock if the door is isolated.

> (1) Should I bond the metal plate to the door with metal braid (what
> kind of metal), but will that help?
> (2) Should I ground the door & plate combo to the water pipe? It's
> going to need several feet of wire to reach the water pipe.

If anything, I would ground the door to a water pipe or something similar. The length of wire is not all that critical - it's the capacitor discharging effect. You want to avoid a potential difference between the door and the grounded visitor. Nothing will save your visitor if lightning actually strikes at your doorstep though.

> (3) What should I do about the underlying stream of water in the
> trench? Is that an additional danger?

I don't think so - it's effectively a buried water pipe. I have a similar setup at my QTH where we had water problems in the basement.

> (5) Should I just take away the metal plate and take my
> chances that no
> one will clump down on the top of the trench and crack the concrete?

No - Murphy's law is very potent and operates independently of thunderstorms :-) Of course, you can always keep the metal plate stashed away somewhere and only bring it out for BA deliveries - always a special occasion IMHO.

> (6) Should I hide in an upper floor during thunder storms
> and hope that
> some poor person doesn't decide to knock on my metal basement door at
> the wrong time? He/she won't be standing on the metal plate,
> but he/she
> will be standing on the wet metal grating just outside the

> door; the one
> that catches the water from the steps and pipes it under the door and
> into the trench.

I thought it was common sense to hide under the bed during a thunderstorm - doesn't everybody??

You can get quite a belt from capacitive coupling. I had a forensic case once where a fellow was prosecuted for setting a "man trap". It consisted of a high voltage impulse source (a car ignition system) connected between the doorknob and a plate under the doormat. Obviously much less energy than a lightning bolt, but quite enough to impress the policeman who came to visit him !

73, Morris VK3DOC

Date: Sun, 20 Oct 2002 22:24:19 -0700
From: Arden Allen <gumbear@pacbell.net>
Subject: Re: Cap value
To: Old Tube Radios <boatanchors@theporch.com>
Cc: Old Tube Radios <boatanchors@theporch.com>
Message-id: <000e01c278c2$1f8629f0$82e57443@KB6NAX>
MIME-version: 1.0
Content-type: text/plain; charset=iso-8859-1
Content-transfer-encoding: 7bit

Hi John;

> ......0.001 uF caps can be made from very temperature
> stable ceramics, so I can't see any good reason to make
> one from a Z5 material.

Size! Temp stable and temp compensating ceramics of the high voltage ratings we're talking about are much larger. When you're making jelly bean parts any savings in material and process costs fattens the bottom line.

Arden Allen
KB6NAX
gumbear@pacbell.net

Date: Sun, 20 Oct 2002 22:38:51 -0700
From: Arden Allen <gumbear@pacbell.net>
Subject: Re: Lightning question?
To: Old Tube Radios <boatanchors@theporch.com>

Message-id: <001801c278c4$257ce360$82e57443@KB6NAX>
MIME-version: 1.0
Content-type: text/plain; charset=iso-8859-1
Content-transfer-encoding: 7bit

Hi Art;

Think *equal potential.* If everything remains at the same potential when a lightening bolt strikes neaby you are safe. That means the door and foot plate should bonded together and to ground with 10 AWG or larger wire. As Morris said, if the lightening bolt strikes your visitor he'll be toast. If the lightening bolt strikes your house it should be striking a lightening rod and going to ground, not meandering its way through your house. If the lightening bolt strikes the electric service drop you're gonna have some ruined appliances and radios. If everything is properly grounded the risk to personnel is minimized. But like Morris also said, lightening obey's Murphy's Law as well as the laws of physics. If you hide under the bed during storms make sure the bed spring is properly grounded - hi!

Arden Allen
Vallejo, CA 94590
gumbear@pacbell.net

Message-ID: <004001c278ec$731d9a10$890f8490@server>
From: "Brian Goldsmith" <brian.goldsmith@echo1.com.au>
To: Old Tube Radios <boatanchors@theporch.com>
Subject: Cap value
Date: Mon, 21 Oct 2002 20:27:23 +1000
MIME-Version: 1.0
Content-Type: text/plain;
charset="iso-8859-1"
Content-Transfer-Encoding: 7bit

----- Original Message -----
From: "John Kolb"
I'd like to cast a disenting vote.I've never heard of Z5F ceramic,

*****Greetings to all.John may never have heard of it but it certainly exists.Z5F is a common or garden type of ceramic capacitor mainly used in bypass applications.There is a family of these non linear temperature coefficient capacitors that use a three digit code to indicate their operating temperature range and their stability over that range. In the following table,the first character indicates minimum operating temperature,the second,maximum temperature and the third gives the stability over this temperature range.

1st Character	Min. Temp.oC
X	-55
Y	-30
Z	+10

2nd Character	Max. Temp.oC
5	+85
7	+125

3rd Character	Stability (%)
F	+/- 7.5
P	+/- 10
R	+/- 15
S	+/- 22
T	+ 22/-33
U	+ 22/-56
V	+22/-82

Thus a capacitor marked Z5F has a minimum temperature of + 10 C,a maximum temperature of +85 C and it exhibits a stability of +/-7.5 % over that temperature range.

Hope this helps,Brian Goldsmith.

Message-Id: <5.1.0.14.2.20021021072419.0191dac8@admin.muohio.edu>
Date: Mon, 21 Oct 2002 07:28:54 -0400
To: Old Tube Radios <boatanchors@theporch.com>
From: "James C. Garland" <4cx250b@muohio.edu>
Subject: Mosley CM-1 speaker swap
Mime-Version: 1.0
Content-Type: text/plain; charset="us-ascii"; format=flowed

Hi Gang,
The Mosley CM-1 receiver (http://www.w8zr.net/vintage/receivers/mosley.htm
)was made with both black and grey cabinet colors. Unfortunately, my CM-1
has a black cabinet, while my matching speaker has a grey cabinet. Anybody
out there with a black speaker who'd be willing to swap it for my grey speaker?

73,
Jim W8ZR

Message-ID: <3DB4006E.8060709@atl.org>

Date: Mon, 21 Oct 2002 09:26:06 -0400
From: Bob Duckworth <wb4mnf@atl.org>
MIME-Version: 1.0
To: Old Tube Radios <boatanchors@theporch.com>
CC: Old Tube Radios <boatanchors@theporch.com>
Subject: Re: Mosley CM-1 speaker swap
Content-Type: text/plain; charset=us-ascii; format=flowed
Content-Transfer-Encoding: 7bit

Jim

How do you like that little "1 tube" receiver?
I think it and the Drake 2B are the two neatest
receivers ever built...

-Bob

James C. Garland wrote:
> Hi Gang,
> The Mosley CM-1 receiver
> (http://www.w8zr.net/vintage/receivers/mosley.htm)v......
....

--
email ah7i@atl.org is active, replacing wb4mnf@atl.org
old address will remain in service until year end

Message-ID: <009001c27929$4279e520$0100a8c0@tower>
From: "Eugene Rippen" <soundval@foothill.net>
To: Old Tube Radios <boatanchors@theporch.com>
Subject: WTB: HV transformer for Collins KWS-1
Date: Mon, 21 Oct 2002 10:42:37 -0700
MIME-Version: 1.0
Content-Type: text/plain;
     charset="iso-8859-1"
Content-Transfer-Encoding: 7bit

I want to buy a good HV transformer for a Collins KWS-1

Gene

Message-ID: <000301c27930$afd10f20$a8a1cdd1@ebjr>
From: "Sandy, W5TVW" <ebjr@i-55.com>
To: Old Tube Radios <boatanchors@theporch.com>
Cc: "Old Tube Radios" <boatanchors@theporch.com>
Subject: Re: Cap value

Date: Mon, 21 Oct 2002 10:41:41 -0500
MIME-Version: 1.0
Content-Type: text/plain;
     charset="iso-8859-1"
Content-Transfer-Encoding: 7bit

To find the voltage rating, one must test a few samples to destruction, multiply
the voltage obtained by some factor less than 1. How this factor is derived, I
don't
know
as I was never in the capacitor manufacturing business.   Perhaps someone has done
some research on something like this?
73,
Sandy W5TVW
----- Original Message -----
From: "John Kolb" <jlkolb@cts.com>
To: "Old Tube Radios" <boatanchors@theporch.com>
Cc: "Old Tube Radios" <boatanchors@theporch.com>
Sent: Sunday, October 20, 2002 10:19 PM
Subject: Re: Cap value

| On Sun, 20 Oct 2002, Avery Comarow wrote:
|
| > Arden, Joe, Russ, Sandy, other gurus who weighed in on the disk ceramics--
| >
| > Thanks for your collective advice and wisdom. Arden's added info pretty
| > much closes the circle, although I do mean to dig out my variable DC power
| > supply, don protective goggles, and see if the caps can withstand a few
| > hundred volts. If and when I do that, I'll post the results to the group.
| >
| > 73, Avery W3AVE
|
| I'd like to cast a disenting vote.
| I've never heard of Z5F ceramic, but Z5U is commonly used for
| values around -.1-1.0 uF ceramic caps. Typically X7r is used
| for around 0.01-0.1. Looking at the CDE website
| http://www.cornell-dublier.com at the general purpose
| ceramic cap section, SL is used from 1-68 pf, 91 pf-0.022 uF
| is Y5P or Y5U, and X7R is used for 0.1. The X7 ceramics vary
| moderately with temp, and the Z5 ceramics vary wildly - heat
| a 0.1 uF Z5U and you can see it drop to 0.01 uF. 0.001 uF caps
| can be made from very temperature stable ceramics, so I can't
| see any good reason to make one from a Z5 material.
|
| If you'd like to mail me a sample cap, I can measure it with
| a C meter - can't tell the voltage rating however.
|

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| John  KK6IL
|
|
| > At 09:12 AM 10/20/02 -0700, you wrote:
| > >Hi Avery;
| > >
| > >> The consensus answer was 1000pf (.001mf). Z5F, several of you said,
| > >> indicates the temperature compensation, which for a cap of this value can
| > >> safely be ignored outside an RF circuit. The voltage rating remains a
| > >> mystery. I'd love to think that MDC means 1000 volts DC, but I seriously
| > >> doubt it. The caps are very small.
| > >
| > >Just some additional information:  The "K" stands for 10% tolerance.  "Z5F"
| > >refers to the dielectric characteristic which is more complicated than just
| > >temperature coefficient of capacitance.  Barry Ornitz can give us more
| > >information about the chemistry and physics of capacitor dielectrics and
| > >probably will when he catches up with us.
| > >
| > >A 1000 volt rating for this capcitor value with respect to its physical size
| > >is not unusual.  Because the Z5F formulation, along with several similar
| > >types, is a so-called "hi-K" type, it is volumetrically very efficient,
| > >i.e., a large amount of capitance for its size.  Hence the small size.  The
| > >tradeoff is the capacitance value is very sensitive to both temperature and
| > >voltage applied.  The value can change as much as 100% for some types of
| > >hi-K caps.  I'm not sufficiently familiar with the various specs to know
| > >about Z5F caps.  A visit to a capacitor manufacturer's website my yield the
| > >information if you're curious.
| > >
| > >> Would you go ahead and use them around boatanchor B+ voltages, like up to
| > >> 500 or so, and see if they pop? Should I put a few of them across a
| > >> variable DC supply and crank it up slowly and see what happens?
| > >
| > >Looks can be deceiving.  I don't know what the voltage rating of your caps
| > >is but my guess is it's 500 or 1000 volts because there is no explicit
| > >voltage marking.  Yes, a test of breakdown voltage is a good idea.  Just
| > >remember, when doing things like this wear eye protection to prevent injury
| > >if the cap should suddenly explode.  Put a limiting resistance in series
| > >with the cap to prevent damage to the power supply as well as limiting the
| > >fury when the cap shorts.  Have fun safely.
| > >
| > >Arden Allen
| > >KB6NAX
| > >gumbear@pacbell.net
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End of BOATANCHORS Digest 3405
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